

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Area [982061] TPX-2 Component Hydraulic System Fluid AW HYDRAULIC OIL ISO 46 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

### **Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORM	/IATION	method	iimit/base	current	nistory i	nistory∠
Sample Number		Client Info		WC0843474	WC0803181	WCM2310621
Sample Date		Client Info		16 Apr 2024	18 Oct 2023	20 Dec 2018
Machine Age	hrs	Client Info		2571	2545	1357
Oil Age	hrs	Client Info		2571	200	0
Oil Changed		Client Info		N/A	Not Chanod	N/A
Sample Status				NORMAL	ABNORMAL	ABNORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	<1	0	3
Chromium	ppm	ASTM D5185m	>10	0	0	<1
Nickel	ppm	ASTM D5185m	>10	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	0	0	1
Lead	ppm	ASTM D5185m	>10	4	4	<1
Copper	ppm	ASTM D5185m	>75	27	26	<1
Tin	ppm	ASTM D5185m	>10	1	1	<1
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 5	current 0	history1 0	history2 81
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 5 5	current 0 0	history1 0 0	history2 81 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5	current 0 0 0	history1 0 0 0	history2 81 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5	current 0 0 0 <1	history1 0 0 0 0	history2 81 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25	current 0 0 0 <1 23	history1 0 0 0 0 26	history2 81 0 0 <1 630
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25 200	current           0           0           0           23           47	history1 0 0 0 0 0 26 39	history2 81 0 0 <1 630 1184
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25 200 300	current           0           0           0           23           47           295	history1 0 0 0 0 26 39 298	history2 81 0 0 <1 630 1184 929
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25 200 300 370	Current 0 0 0 <1 23 47 295 340	history1 0 0 0 26 39 298 367	history2 81 0 0 <1 630 1184 929 983
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 2 2 2 5 3 0 0 3 0 0 3 7 0 2 5 0 0	Current 0 0 <1 23 47 295 340 6133	history1 0 0 0 26 39 298 367 5407	history2           81           0           0              630           1184           929           983           2989
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 5 2 2 5 2 0 0 3 0 0 3 0 0 3 7 0 2 5 0 0 2 5 0 0 2 5 0 0 2 0 0 3 0 0 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	current           0           0           0           23           47           295           340           6133           current	history1 0 0 0 26 39 298 367 5407 history1	history2         81         0         01         630         1184         929         983         2989         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 25 200 300 370 2500 2500 2500	current           0           0           0           0           23           47           295           340           6133           current           <1	history1           0           0           0           0           0           26           39           298           367           5407           history1           1	history2         81         0         0         0            630         1184         929         983         2989         history2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 25 200 300 370 2500 2500 limit/base >20	current           0           0           0           0           23           47           295           340           6133           current           <1           3	history1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         26         39         298         367         5407         history1         1         <1	history2         81         0         0         0         <11         630         1184         929         983         2989         history2         5         2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 25 200 300 370 2500 2500 limit/base >20	current           0           0           0           0           23           47           295           340           6133           current           <1           3           <1	history1         0         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         1         1         1         1         1	history2         81         0         0         0         1         630         1184         929         983         2989         history2         5         2         3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 5 5 200 25 200 300 370 2500 limit/base >20 limit/base	current         0         0         0         0         <1         23         47         295         340         6133         current         <1         3         <1         3         <1         state         current	history1         0         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         +1         1         +1         1         +1         1         +1         1         +1         1	history2         81         0         c1         630         1184         929         983         2989         history2         5         2         3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 25 200 300 370 25000 limit/base >20 limit/base >5000	current           0           0           0           0           23           47           295           340           6133           current           <1           3           <1           3           <1           856	history1         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         1         1         1         1         1         1         1         1         1         1         19096	history2         81         0         1         630         1184         929         983         2989         history2         5         2         3         history2         268032
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 5 25 200 300 370 2500 2500 220 >20 limit/base >5000 >1300	current           0           0           0           0           <1           23           47           295           340           6133           current           <1           3           <1           3           <1           3           <1           31           <1           856           180	history1         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         history1         1         998         367         5407	history2         81         0         10         01         630         1184         929         983         2989         history2         5         2         3         history2         ▲ 268032         ▲ 45272
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 5 25 200 300 370 2500 2500 20 20 1mit/base >20 1mit/base >5000 >1300 >160	current         0         0         0         0         <1         23         47         295         340         6133         current         <1         3         <1         3         <1         180         21	history1         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         history1         1         1         1         1         298         367         5407	history2         81         0            630         1184         929         983         2989         history2         5         2         3         history2         ▲         268032         ▲         45272         ▲         182
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 5 5 5 20 200 200 200 20 20 1000 20<	current           0           0           0           0           <1           23           47           295           340           6133           current           <1           3           <1           3           <1           856           180           21           8	history1         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         history1         1         19096         1956         29         11	history2         81         0            630         1184         929         983         2989         history2         5         2         3         history2         ▲         268032         ▲         45272         ▲
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >14µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647           ASTM D7647	limit/base 5 5 5 20 200 200 200 200 200 1000 200	current         0         0         0         0         <1         23         47         295         340         6133         current         <1         3         <1         3         <1         856         180         21         8         2	history1         0         0         0         0         26         39         298         367         5407         history1         1         <1         1         1         1         1         19096         29         11         1956         29         11         1	history2         81         0

ISO 4406 (c) >19/17/14

**Oil Cleanliness** 

🔺 21/18/12

▲ 25/23/15

17/15/12



3001 = <sup>250k</sup>

Dec20/

2.

uper (mg KOH/g)

Base N po 0.5

0.0

120

cSt (40°C)

60 40 20

300

Ê<sup>250)</sup>

2001 2001 1501

b 100

50

Ωk

Dec20/1

Abnorma

Jec20/

Particle Trend

Acid Number

Viscosity @ 40°C

200k septimed 150k to to to the total total

Particle Trend

. 4.um

c+18/7

Let18/22

lct18/23

0ct18/23

# **OIL ANALYSIS REPORT**

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	0.28	0.26	1.919
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	44.3	44.2	110.0
SAMPLE IMAGES	S	method	limit/base	current	history1	history2

Color



Bottom



Laboratory : WC0843474 5400 INTERNATIONAL BLVD, BLDG 88-20 Sample No. Received : 19 Apr 2024 Lab Number : 06154320 Tested : 22 Apr 2024 NORTH CHARLESTON, SC Unique Number : 10989743 Diagnosed : 23 Apr 2024 - Jonathan Hester US 29418 Test Package : MOB 2 Contact: Maxime Banctel Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. maxime.banctel@aes-gse.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: 

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: Maxime Banctel - TLDNOR

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